

Title (en)

Chemorheologically tailored matrix resin formulations and their use in making pre-impregnated fibers and in fabricating composite parts.

Title (de)

Chemorheologisch angepasste Harzmatrixformulierung und ihre Anwendung in der Herstellung von vorimprägnierten Fasern und Verbundmaterialien.

Title (fr)

Formulations de matrice de résine adaptées du point de vue de la chémorhéologie et leur utilisation dans articler composites préimprégnés.

Publication

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Application

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Priority

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Abstract (en)

A chemorheologically viscosity tailored matrix resin formulation for use in forming prepregs and filament wound composite articles and having a specified viscosity profile, comprising a curable matrix resin and an effective amount of a reactive resin curing agent reactive at room temperature and a latent resin curing agent substantially non-reactive at room temperature but activated upon heating or radiation. The matrix resin formulation is adapted upon formulation to have a low initial viscosity for impregnation of filaments or fibers at room temperature, the viscosity rising upon standing to facilitate spooling while remaining low enough to allow the prepreg to tack and drape in order to nestle and seat during winding of a filament wound composite article. Subsequently the matrix resin in the prepreg experiences a reduction in viscosity upon heating, to allow the resin to flow and substantially eliminate formation of voids in the winding of a composite article prior to curing.

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